

REMARKS/ARGUMENTS

The action by the Examiner of this application, together with the cited references, have been given careful consideration. Following such consideration, claims 15, 20, 22, and 26 have been amended to more clearly define the patentable invention applicant believes is disclosed herein. Moreover, claims 19, 21, 24 and 25 have been cancelled. Claims 16-18, 23, and 27-31 are unchanged by the present amendment paper. Per the restriction requirement, claims 1-14 have been withdrawn from further consideration at this time. This amendment is presented according to "Revised Amendment Practice" (37 C.F.R. 1.121), effective July 30, 2003. It is respectfully requested the Examiner reconsider the claims in their present form, together with the following comments, and allow the application.

The present application has been subject to a restriction requirement. Accordingly, claims 1-14 have been withdrawn, and claims 15-31 have been examined on the merits in the present Office Action.

The Examiner has rejected claims 19-20 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Appropriate corrections have been made by amendment. In particular, claim 15 now defines a range of concentrations for hydrochloric acid, glycerin and thiourea. Claim 19 has now been canceled. Accordingly, it is respectfully requested that the Examiner now withdraw the 35 U.S.C. 112, second paragraph rejection.

It should be appreciated that the present invention is generally directed to a resistive etching solution that results in increased etching rates in the case of high ratios of C_{SA}/R_{SA} , where C_{SA} is the service area of copper exposed to the etching solution and R_{SA} is the surface area of Ni/Cr alloy exposed to the etching solution. The present invention also increases the etching rates in the cases where the etching spaces are small (i.e., less than about 2-6 mil wide).

The Examiner has rejected claims 15-23 and 27-31 as being unpatentable over the admitted prior art in view of U.S. Patent No. 4,370,197 to Abolafia et al. Furthermore, claims 15-31 have been rejected under 35 U.S.C. 103 as being unpatentable over U.S. Patent No. 4,370,197 to Abolafia et al. in view of U.S. Patent No. 4,160,691 to Abolafia et al.

Independent claim 15 now includes the step of:

Selectively etching the resistive layer with an etchant comprised of *hydrochloric acid, glycerin and thiourea*, wherein said hydrochloric acid is in a range of 5 volume% to 95 volume%, said glycerin is in a range of 5 volume% to 95volume%, and said thiourea is in a range of 0.1 ppm to 100 grams/liter. (emphasis added.)

The Examiner relies upon Abolafia et al. '197 as teaching a solution for etching a chromium layer comprising hydrochloric acid and thiourea. The Examiner acknowledges that Abolafia et al. '197 does not teach an etching composition further comprising glycerin. Accordingly, the Examiner argues that Abolafia et al. '691 teaches a composition for selectively etching chromium comprising hydrochloric acid and glycerin. To support the Examiner's contention that Abolafia et al. '197 and Abolafia et al. '691 are obvious to combine, the Examiner refers to MPEP § 2144.06. The Examiner repeats the quote from this section as follows "It is *prima facie* obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose...[T]he idea of combining them flows logically from their having been individually taught in the prior art."

It is respectfully submitted that the Examiner has not combined two compositions, each respectively disclosed in Abolafia et al. '197 and Abolafia et al. '691, but rather has taken the composition disclosed in Abolafia et al. '197 and combined it with a *single element* (i.e., glycerin) that is but one component of the etching solution disclosed in Abolafia et al. '691. It is respectfully submitted that, it is only with hindsight reconstruction that a single element of Abolafia et al '691 would be combined with the etching solution disclosed in Abolafia et al. '197.

Moreover, Abolafia et al. '197 clearly recognizes the teachings of Abolafia et al. '691, but acknowledges that "[a]lthough the invention disclosed and described in U.S. Pat. No. 4,160,691 does in fact minimize the undercutting of the top chromium layer and the changes in resistivity of the cermet experienced by other acidic compositions, such is still not entirely satisfactory. The compositions could stand improvement with respect to pH stability during use and over long periods of time and could stand improvement with respect to storage stability over relatively long periods of time." While Abolafia et al. '197 references Abolafia et al. '691, no

where does it teach or suggest that it would be obvious to selectively take the glycerin disclosed in Abolafia et al. '691 and use it in combination with the etching solution taught in Abolafia et al. '197 (comprised of hydrochloric acid and thiourea).

Furthermore, it is respectfully submitted that neither of the cited references, taken individually or in combination, teach or suggest the process steps defined by claim 15, wherein the specifically defined concentrations of hydrochloric acid, glycerin and thiourea are used in etching a resistive layer.

In view of the foregoing, it is respectfully submitted that independent claim 15 is patentable over the prior art.


Claims 16-18, 20, 22-23 and 26-31 depend from claim 15, thus it is respectfully submitted that these claims are patentable over the prior art for at least the reasons set forth above in connection with independent claim 15.

In view of the foregoing, it is respectfully submitted that the present application is now in proper condition for allowance. If the Examiner believes there are any further matters which need to be discussed in order to expedite the prosecution of the present application, the Examiner is invited to contact the undersigned.

If there are any fees necessitated by the foregoing communication, please charge such fees to our Deposit Account No. 50-0537, referencing our Docket No. GD7345US.

Date: April 30, 2004

Respectfully submitted,

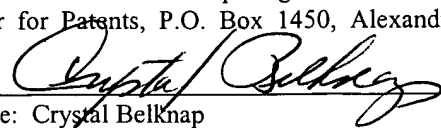


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I hereby certify that this correspondence (along with any paper referenced as being attached or enclosed) is being deposited on the below date with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Date: April 30, 2004



Name: Crystal Belknap